1.-20. (Canceled)

21. (Previously Presented) A method comprising:

receiving, from a data source associated with a transmitter, data to be transmitted to a receiver;

inserting a matrix of pilot tones into at least a portion of the data; and

transmitting a signal to the receiver, wherein the signal includes the data and the matrix of pilot tones, and wherein the matrix of pilot tones is configured to be used by the receiver to determine a sampling frequency offset of the signal.

22. (Previously Presented) The method of claim 21, further comprising encoding the data, wherein encoding the data comprises adding parity to the data to generate channel-encoded data.

23. (Previously Presented) The method of claim 22, further comprising mapping the channel-encoded data into data symbols, wherein the data symbols correspond to specific symbols from a predetermined alphabet.

24. (Previously Presented) The method of claim 23, further comprising forming a frame, wherein the frame comprises a stream of the data symbols.

25. (Previously Presented) The method of claim 21, wherein a plurality of signals are transmitted to the receiver using a plurality of sub-channels, and wherein each sub-channel corresponds to a specific frequency.

26. (Previously Presented) The method of claim 21, wherein the matrix of pilot tones is periodically inserted into the data.

27. (Previously Presented) The method of claim 21, wherein the matrix of pilot tones comprises a predetermined signal transmission matrix for configuration of a multi-input, multi-output orthogonal frequency division multiplexing system.

28. (Previously Presented) The method of claim 21, further comprising generating the matrix of pilot tones using a shift register circuit.

29. (Previously Presented) A method comprising:

receiving, at a receiver, a signal from a transmitter, wherein the signal includes data and a matrix of pilot tones inserted into the data by the transmitter;

determining an estimated sampling frequency offset of the signal based at least in part on the matrix of pilot tones; and

determining a corrected sampling frequency offset of the signal based at least in part on the estimated sampling frequency offset.

30. (Previously Presented) The method of claim 29, further comprising:

amplifying the signal to generate an amplified signal; and

demodulating the amplified signal using a local signal generated by a local oscillator of the receiver.

31. (Previously Presented) The method of claim 29, wherein the corrected sampling frequency offset is determined using a synchronization circuit.

32. (Previously Presented) The method of claim 29, further comprising converting the signal into discrete time samples using an analog-to-digital converter of the receiver.

33. (Previously Presented) The method of claim 32, further comprising using a fast Fourier transform process to demodulate the discrete time samples.

34. (Previously Presented) The method of claim 29, further comprising generating a sampling offset correction matrix based at least in part on the estimated sampling frequency offset, wherein the corrected sampling frequency offset is determined based at least in part on the sampling offset correction matrix.

35. (Previously Presented) The method of claim 29, further comprising recovering the data from the signal based at least in part on the corrected sampling frequency offset.

36. (Previously Presented) An apparatus comprising:

means for generating a matrix of pilot tones;

means for inserting the matrix of pilot tones into at least a portion of received data; and

means for generating a signal, wherein the signal includes the received data and the matrix of pilot tones, and wherein the matrix of pilot tones is configured to be used by a receiver to determine a sampling frequency offset of the signal.

37. (Previously Presented) The apparatus of claim 36, further comprising means for encoding the received data, wherein encoding the received data comprises adding parity to the received data to generate channel-encoded data.

38. (Previously Presented) The apparatus of claim 37, further comprising means for mapping the channel-encoded data into data symbols, wherein the data symbols correspond to specific symbols from a predetermined alphabet.

39. (Previously Presented) The apparatus of claim 38, further comprising means for forming a frame, wherein the frame comprises a stream of the data symbols.

40. (Previously Presented) The apparatus of claim 36, wherein the matrix of pilot tones is periodically inserted into the received data.

41. (Previously Presented) The apparatus of claim 36, wherein the matrix of pilot tones comprises a predetermined signal transmission matrix for configuration of a multi-input, multi-output orthogonal frequency division multiplexing system.

42. (Previously Presented) The apparatus of claim 36, further comprising means for transmitting the signal to the receiver.

43. (Previously Presented) An apparatus comprising:

a processor configured to

generate a matrix of pilot tones;

insert the matrix of pilot tones into at least a portion of data; and

generate a signal, wherein the signal includes the data and the matrix of pilot tones, and wherein the matrix of pilot tones is configured to be used by a receiver to determine a sampling frequency offset of the signal; and

an antenna operatively coupled to the processor and configured to transmit the signal to the receiver.

44. (Previously Presented) The apparatus of claim 43, wherein the processor is further configured to encode the data by adding parity to the data to generate channel-encoded data.

45. (Previously Presented) The apparatus of claim 44, wherein the processor is further configured to map the channel-encoded data into data symbols.

46. (Previously Presented) The apparatus of claim 45, wherein the data symbols correspond to specific symbols from a predetermined alphabet.

47. (Previously Presented) The apparatus of claim 43, wherein the antenna is configured to transmit a plurality of signals to the receiver using a plurality of sub-channels, and wherein each sub-channel corresponds to a specific frequency.

48. (Previously Presented) The apparatus of claim 43, wherein the matrix of pilot tones comprises a predetermined signal transmission matrix for configuration of a multi-input, multi-output orthogonal frequency division multiplexing system.

49. (Previously Presented) A tangible computer-readable medium having stored thereon, computer-executable instructions that, if executed by a computing device, cause the computing device to perform a method comprising:

generating a matrix of pilot tones;

inserting the matrix of pilot tones into at least a portion of data, wherein the data originates from a data source; and

generating a signal, wherein the signal includes the data and the matrix of pilot tones, and wherein the matrix of pilot tones is configured to be used by a receiver to determine a sampling frequency offset of the signal.

50. (Previously Presented) The tangible computer-readable medium of claim 49, further comprising transmitting the signal to the receiver.

51. (Previously Presented) The tangible computer-readable medium of claim 49, further comprising receiving the data from the data source.

52. (Previously Presented) The tangible computer-readable medium of claim 49, further comprising encoding the data, wherein encoding the data comprises adding parity to the data to generate channel-encoded data.

53. (Previously Presented) The tangible computer-readable medium of claim 52, further comprising mapping the channel-encoded data into data symbols, wherein the data symbols correspond to specific symbols from a predetermined alphabet.

54. (Previously Presented) The tangible computer-readable medium of claim 49, wherein the matrix of pilot tones is periodically inserted into the data.

55. (Previously Presented) The tangible computer-readable medium of claim 49, wherein the matrix of pilot tones is generated using a shift register circuit.